

**DEVICE FOR DETECTING A CHEMICAL ELEMENT
BY PHOTOEXCITATION**

ABSTRACT

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The invention concerns a device for detecting by photoexcitation a chemical element in a host substrate, comprising : an optical excitation source (1) emitting, In the direction of a substance sample, a light beam whereof the wavelength, located in the mid infrared, corresponds to an absorption band specific of the element; and means for detecting and measuring (11, 12, 13) the heating affects of the host substance, resulting from the interaction of the element molecules excited by said beam said substance. The optical excitation source is a III / V semiconductor laser. It can be a quantum cascade laser, a type II quantum well laser, a type II cascade quantum laser or a multi-quantum laser using materials with low forbidden band energy.

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Figure 2